A NATURALLY OCCURRING F_1 HYBRID OF MONARDA MEDIA AND M. FISTULOSA

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On 25 June 1959 I was traveling along the highway south of Blairsville, Union County, Georgia and noticed a large colony of the relatively common *Monarda fistulosa* var. *mollis* (L.) Benth. growing along the cleared right-of-way and in the adjacent open woods. I was unable to stop but did notice, in striking contrast to all other plants of *Monarda* in the area, one circular cluster of stems which I thought was *M. media* Willd. Earlier in the day and within the previous few years I had seen this species as an ornamental at various mountain homes and occasionally escaped, or possibly native. It should be recorded that *M. media* has not been previously reported as spontaneously reproducing in the wild from Georgia.

I was able to return later in the day to the large colony of *M. fistulosa* var. *mollis* with its beautiful display of light violet corollas. There were several thousand stems scattered in such a manner that it would be possible to walk among most without trampling them. It was obvious that there were a number of instances in which a single plant was represented by a cluster of stems still connected by living rhizomes. There were a few large distinctly circular clusters in which many groups of stems were not connected to the whole by living rhizomes. It seems, therefore, that there was some development of clones from original isolated plants. It does not appear likely that the entire population was one large clone because of the occurrence of isolated circular clusters of stems, particularly at the population margins.

The deep purple corollas of the single cluster of stems previously thought to represent *M. media* seemed in even greater contrast than earlier in the day. It was soon evident that this small cluster of plants was in some ways unlike *M. media* which it at first seemed to be. The time available was very short and so I was able to make only a few notes and take specimens of both kinds of plants. I then traveled about one-fourth mile to the nearest colony

of *M. media* in the open yard of a mountain residence, examined the plants, and made a collection.

Back at the herbarium of the University of Georgia I was able to study at length the collections and notes. I came to the conclusion that the small cluster of stems was a clone perhaps only recently developed from a naturally occurring F_1 hybrid. Some stems were joined in groups by living rhizomes but separation had occurred in the 30″ diameter cluster. All stems seemed to have arisen from a single plant which presumably grew from the F_1 seed. It is thought that at least one flower of *M. fistulosa* var. *mollis* must have been pollinated by some insect carrying pollen from *M. media* plants. The resultant F_1 embryo developed into a plant which is described as follows:

1. Petal color identical to that of *M. media*, deep purple (7.5p-3/9 of the Nickerson Color Fan, published by the Munsell Color Co., 1957). In the common native var. *mollis* the corollas are light violet (2.5p-6/7).

2. Calyx lobes 1 mm. long as in *M. media*. In the other they are 2 mm.

3. Leaf texture is similar to var. *mollis* which is described by Fernald (1950) as being firm in contrast to the membranaceous leaves of *M. media*.

4. The throat of the calyx tube is densely hirsute with erect white hairs as described for var. *media* by Gleason (1952). That of *M. media* is less bearded and the hairs are not white. These differences are readily evident to the naked eye.

5. Height of plants is intermediate.

6. Average leaf shape is intermediate (Fig. 1) but the sides do not gradually curve to acuminate tips as in *M. media*.

7. The vestiture at the tip of the upper lip of the corolla is intermediate between the densely villose var. *mollis* and the less prominently villous *M. media*.

Monarda × **medioides** Duncan, hybr. nov., hybrida naturalis nova inter *M. fistulosam* var. *mollem* (L.) Benth. et *M. mediam* Willd. Similis primae in textura foliorum (firmus) et pilis in gutture calycis. Similis alteri in colore petali et longitudine loborum calycis. Media in altitudine plantae forma foliorum et pilis apicem versus labiae superioris corollae.

The type (*Duncan 21628*) is deposited in the University of Georgia Herbarium, the colony of *M. fistulosa* var. *mollis* being represented by the collection, *Duncan 21629*, and *M. media* by *Duncan 21630*.

Monarda × *medioides* in some respects is similar to *M. fistulosa* var. *rubra* Gray but lacks the plant height and the

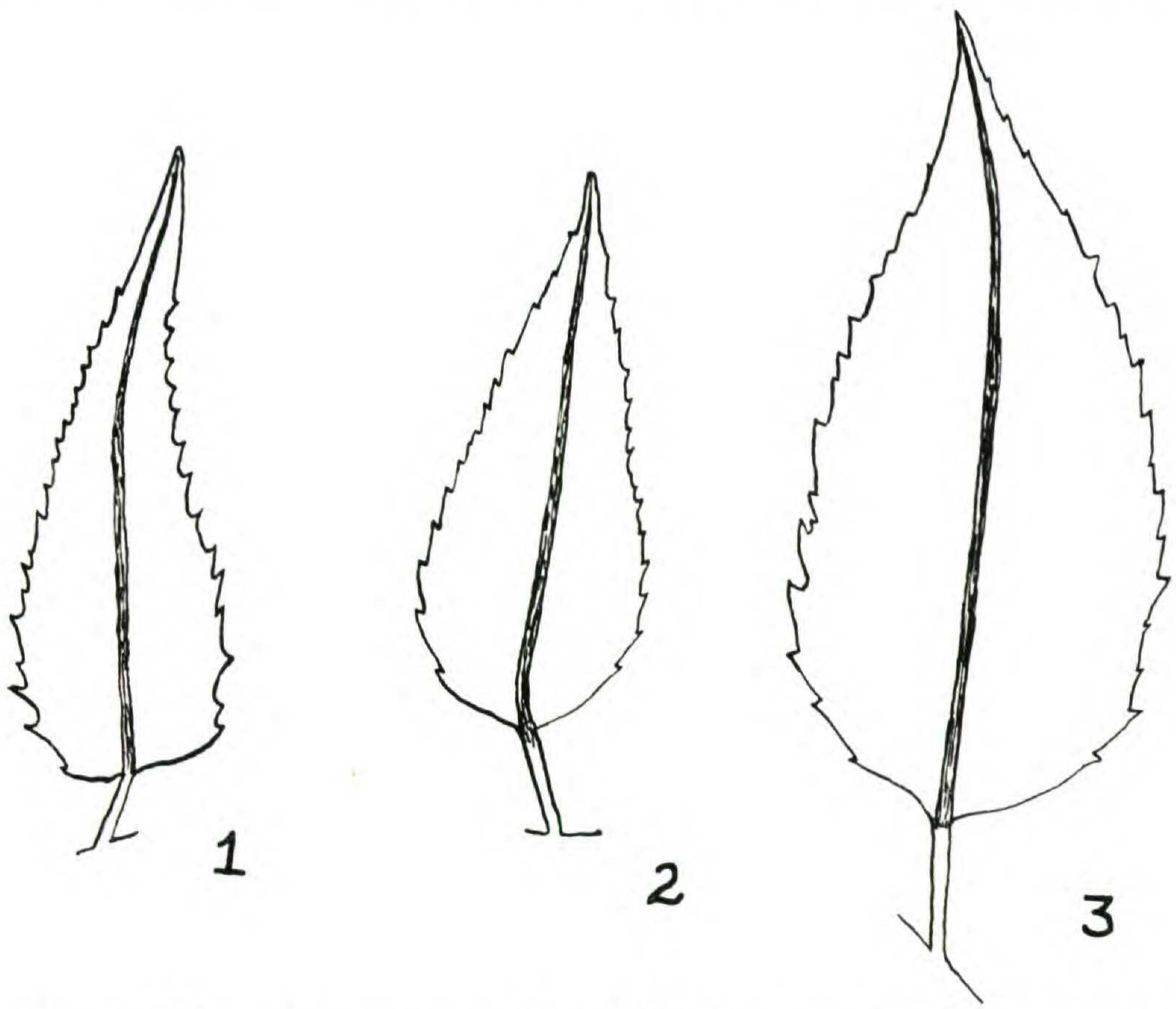

FIG. 1 Outline of average leaves of: 1. *M. fistulosa* var. *mollis*. 2. F_1 hybrid. 3. *M. media*.

pubescence attributed to the leaves and upper part of the plant (Fosberg and Artz, 1953). Furthermore, the lower lip of the corolla is pubescent.

Apparently hybridization in *Monarda* is to be expected. McClintock and Epling (1942) state that except for two species, it would appear that the whole subgenus (to which the taxa involved here belong) is a polyploid complex. They point out the occurrence of intergradation between various species. However, no close relationship nor intergradation between *M. media* and *M. fistulosa* is indicated by them.

The microscopic examination made of pollen of the parents and hybrid by Dr. Edward T. Browne is gratefully acknowledged. In *M. media* 20% of 69 grains appeared aberrant, in the other parent 28% of 219 grains, and in the hybrid 25% of 223 grains. These pollen data do not suggest a distant relationship for the two parents. However, the nature of the relationship needs to be solved. It is hoped that someone may have the opportunity, which I do not have, to attempt artificial crosses and to make backcrosses to the two parents, thus providing data concerning the compatibility of the parental types. — DEPARTMENT OF BOTANY, UNIVERSITY OF GEORGIA.

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NEW COMBINATIONS IN THELYPTERIS

George R. Proctor

In preparing an account of the ferns for a forthcoming volume on the flora of the Lesser Antilles[1], the writer is recognizing a total of 35 species in the genus *Thelypteris* for this geographic area. A number of these have not previously been formally transferred to this genus (or, in one case, was published in an illegitimate combination) : the following new combinations are therefore necessary:

THELYPTERIS ABRUPTA (Desv.) comb. nov., based on *Polypodium abruptum* Desv., Mém. Soc. Linn. Paris **6**:293. 1827. (Type from the West Indies without exact locality). (Not *Dryopteris abrupta*

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